Title: Commercials: Are They Worth Your Time?

Link to Outcomes:

- **Problem Solving** Students will demonstrate the ability to solve mathematics problems.
- **Communication** Students will demonstrate the ability to communicate mathematically. They will write and discuss mathematics with the language, signs, symbols, and terms of the discipline.
- **Reasoning** Students will demonstrate the ability to reason mathematically. They will make conjectures, gather evidence, and build arguments.
- **Connections** Students will demonstrate the ability to apply estimation strategies in computation (with the use of technology), in measurement, and in problem solving.
- **Estimation** Students will demonstrate the ability to apply estimation strategies.
- **Measurement** Students will demonstrate and apply concepts of measurement using standard units, estimate and verify measurements, and apply measurement to real world problem solving situations.
- **Number Sense & Numeration** Students will demonstrate the ability to describe and apply number relationships using concrete and abstract materials. They will choose appropriate operations and describe effects of operations on numbers.
- **Concepts of Whole Number Operations** Students will demonstrate the ability to understand various meanings of addition, subtraction, multiplication and division.
- **Whole Number Computation** Students will demonstrate the ability to choose the appropriate mathematical operation.
- **Statistics & Probability** Students will demonstrate the ability to collect, organize, and display data and will interpret information obtained from displays. They will record data collected in journals.
- **Patterns and Relationships** Students will demonstrate the ability to manipulate data by means of comparison.

Brief Overview:

Using computation skills, data collection, and cooperative groups, students will observe, discuss, and collect data about television commercials in an organized format. The class then uses that information to make predictions and generate charts and graphs for the purpose of comparison. Students will use a journal to log data and write predictions, findings and conclusions. Final assessment will include a fictitious account, in the student's journal, using the data to justify how often, when, and during which time periods they would advertise a product.

Grade/Level:

Grades 3, 4 and 5

Duration/Length:

This lesson will take five 45 - 50 minute periods over a span of 10 days, as several days may be needed to collect data.

Prerequisite Knowledge:

Student should have prior knowledge of the following skills:

- time-telling in one minute intervals.
- basic grade-level computation skills.
- journal recording procedures.
- familiarity with TV show time listings.
- percentage functions using a calculator (optional--age related).

Objectives:

The student will:

- predict outcomes using minutes.
- collect and organize data.
- design and construct a Venn Diagram.
- read and interpret data.
- construct a bar graph demonstrating findings.
- compare and contrast data.
- analyze data logistically.

Materials/Resources/Printed Materials:

- Calculators (optional)
- Journal organizers (5 per student)
- Construction paper (10 sheets per student)
- Math Journal
- Color markers (10 sets, 8 colors per set)
- Rulers
- Television set
- Newspaper TV show listing sheet
- Manipulative clocks (if needed)
- Teacher-made 2 and 3 circle Venn diagrams

Development/Procedures:

Day 1: Introduction

- Review time telling in 5- and 1- minutes intervals as a group using small manipulative clocks (approximately 10 minutes).

- Locate TV listings section in the newspaper and as a class, find several teacher identified shows. Students note beginning and ending times in their math journals.

- Discuss the amount of total commercial time in a given ½-hour show. Teacher selects a partner for each student.

- Predictions are then made by students as to the length of a commercial and number of commercials in a typical free network half-hour show. Predictions are then recorded under present day's date in the math journal.

- Explain journal organizer to the pupils.

- Homework: Assign a show for commercial time/data collecting.

Day 2:

- Have students compare commercial length results/data. This involves a total class discussion. Record the results on a master chart for the class.

- Using prediction skills, students follow the same procedure as in day 1 for at least four days (to be done at home). A journal organizer sheet is used for data entry. Teacher divides the class into three groups, giving each group a different viewing time for later comparison of commercial length.

Day 3 (four data entries later)**:**

- Group students so that each set has members from the three different viewing slots (given in day 2).

- Compare time lengths of the commercials and pose questions such as: *Are they the same length? Different? Why or why not?* Students write responses in their math journals.

- Take time information and have groups write their findings in a three-circle Venn diagram comparing differences and similarities or on chart paper for class discussion.

- Investigate the percentage of time spent on commercials versus the actual time of a half-hour show, where appropriate (they may use calculators if needed).

Day 4:

- Third Grade: Using addition skills, have pupils tally total minutes after 5 days commercial time in a half-hour show (they may do this in groups). Record information in math journals.
  Fourth and Fifth Grade : Have students tally and find the mean of the commercial length. Discuss the results.

Day 5:

- Using their data, students will determine where and when they would place an advertisement directed at their peers. They will describe in their journal, the reasoning behind their choice. The teacher will determine the criteria for the assignment.

Evaluation:

Students and teacher will conference and generate criteria for:

- Venn diagrams and chart work.
- consistent use of journal organizer.
- recording of data, time accuracy.
- logical reasoning for commercial placement within a program.

Extension/Follow Up:

The topic of commercial air-time lends itself to many interdisciplinary extensions.

- Social Studies/Economics: Study kinds of products and when these commercials are shown; investigate the cost of the favorite commercials; calculate the expense of a "local" commercial using information attained from local radio and television stations and comparing these costs.

- Language Arts: Students could formulate a persuasive commercial geared to their peer group selling one aspect of mathematics as a "fun" and interesting topic.

Authors:

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Name _____

Journal Organizer

Program Title & Date	Length of Show:	Time of Show:	Ad #1 Total Time:	Ad #2 Total Time:	Ad #3 Total Time:	Ad #4 Total Time:	Ad #5 Total Time:	Ad #6 Total Time:	Total minutes, Comments:

Date_____

Dear Parents:

The students in my class are beginning a unit that looks at the commercials broadcast on television during our favorite shows. We will begin by collecting information or data on the actual time of the commercials, the length of the commercial, the products advertised, and the target audience.

I will be asking students to watch during assigned time periods and record the data in their math journals. Directions for completing the log will be given during class, but should be easy for students to fill in the appropriate blanks with their data.

It is my hope that you will continue to monitor their TV viewing as always, but this will present a unique opportunity for families to talk about what is being advertised, the targeted population, and what type of message is used to sell the product.

I hope the students will enjoy the unit and benefit from our research and discussion. Please contact me at school if you have questions or need more information.

Counting on math,

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